

1. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:  
positioning a substrate within a chemical vapor deposition reactor; and  
simultaneously a) providing gaseous barium and strontium within the reactor by  
flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium  
within the reactor, and c) flowing at least one gaseous oxidizer comprising  $H_2O$  to the  
reactor under conditions effective to deposit a barium strontium titanate comprising  
dielectric layer on the substrate, the a ratio of barium relative to strontium within the  
dielectric layer being non-homogenous.

2. The method of claim 1 comprising flowing another inorganic oxidizer to the  
reactor during the deposit.

3. The method of claim 1 wherein the conditions comprise receipt of the  
substrate by a susceptor, the susceptor having a temperature of less than or equal to  
550°C.

4. (Cancelled)

5. (Cancelled)

6. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:  
positioning a substrate within a chemical vapor deposition reactor; and  
simultaneously a) providing gaseous barium and strontium within the reactor by  
flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium  
within the reactor, and c) flowing at least one gaseous oxidizer comprising  $H_2O_2$  to the  
reactor under conditions effective to deposit a barium strontium titanate comprising  
dielectric layer on the substrate, the dielectric layer having a first portion comprising a first  
ratio of barium relative to strontium, and a second portion having a second ratio of barium  
relative to strontium, the first ratio differing from the second ratio.

7. The method of claim 6 comprising flowing another inorganic oxidizer to the  
reactor during the deposit.

8. The method of claim 6 wherein the conditions comprise receipt of the  
substrate by a susceptor, the susceptor having a temperature of less than or equal to  
550°C.

9. (Cancelled)

10. (Cancelled)

11. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizers comprising  $H_2O$  and at least another oxidizer selected from the group consisting of  $O_2$ ,  $O_3$ ,  $NO_x$ , and  $N_2O$ , where "x" is at least 1, an amount of titanate incorporated into the dielectric layer differing from an amount that would be incorporated in the absence of the  $H_2O$  under otherwise identical conditions.

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12. The method of claim 11 wherein the another oxidizer comprises  $O_2$ .

13. The method of claim 11 wherein the another oxidizer comprises  $O_3$ .

14. The method of claim 11 wherein the another oxidizer comprises  $NO_x$ , where "x" is at least 1.

15. The method of claim 11 wherein the another oxidizer comprises  $N_2O$ .

16. (Amended) The method of claim 11 wherein the oxidizers further comprise

*H<sub>2</sub>O<sub>2</sub>*.

17. The method of claim 11 the oxidizers comprise at least two of the another oxidizers.

18. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, one or more of the at least one metal organic precursors comprising a  $\beta$ -diketonate ligand selected from the group consisting of thd, methd, and dmp, b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizers comprising  $\text{H}_2\text{O}_2$  and at least another oxidizer selected from the group consisting of  $\text{O}_2$ ,  $\text{O}_3$ ,  $\text{NO}_x$ , and  $\text{N}_2\text{O}$ , where "x" is at least 1, wherein the presence of  $\text{H}_2\text{O}_2$  during deposition of the dielectric layer influences the amount of Ti incorporated into the dielectric layer.

19. The method of claim 18 wherein the another oxidizer comprises  $\text{O}_2$ .

20. The method of claim 18 wherein the another oxidizer comprises  $\text{O}_3$ .

21. The method of claim 18 wherein the another oxidizer comprises  $\text{NO}_x$ , where "x" is at least 1.

22. The method of claim 18 wherein the another oxidizer comprises  $N_2O$ .
24. The method of claim 18 the oxidizers comprise at least two of the another oxidizers.
25. The method of claim 1 wherein the at least one metal organic precursor comprises a member selected from the group consisting of  $Ba(thd)_2$ ,  $Sr(thd)_2$ ,  $Ba(methd)_2$ ,  $Sr(methd)_2$ ,  $Ba(dpm)_2$ , and  $Sr(dpm)_2$ .
26. The method of claim 1 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of  $Ti(dmae)_4$ ,  $Ti(thd)_2(O-i-Pr)_2$ ,  $TiO(dpm)_2$ ,  $Ti(t-BuO)_2(dpm)_2$ , and  $Ti(OCH_3)_2(dpm)_2$ .
27. The method of claim 6 wherein the at least one metal organic precursor comprises a member selected from the group consisting of  $Ba(thd)_2$ ,  $Sr(thd)_2$ ,  $Ba(methd)_2$ ,  $Sr(methd)_2$ ,  $Ba(dpm)_2$ , and  $Sr(dpm)_2$ .
28. The method of claim 6 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of  $Ti(dmae)_4$ ,  $Ti(thd)_2(O-i-Pr)_2$ ,  $TiO(dpm)_2$ ,  $Ti(t-BuO)_2(dpm)_2$ , and  $Ti(OCH_3)_2(dpm)_2$ .

29. The method of claim 11 wherein the at least one metal organic precursor comprises a member selected from the group consisting of Ba(thd)<sub>2</sub>, Sr (thd)<sub>2</sub>, Ba(methd)<sub>2</sub>, Sr(methd)<sub>2</sub>, Ba(dpm)<sub>2</sub>, and Sr(dpm)<sub>2</sub>.

30. The method of claim 11 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of Ti(dmae)<sub>4</sub>, Ti(thd)<sub>2</sub> (O-i-Pr)<sub>2</sub>, TiO(dpm)<sub>2</sub>, Ti(t-BuO)<sub>2</sub>(dpm)<sub>2</sub>, and Ti(OCH<sub>3</sub>)<sub>2</sub>(dpm)<sub>2</sub>.

31. The method of claim 18 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature from 440°C to 700°C.